

SYNTAX

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RUMORS PERSIST, BUT STILL NO DEAL

Despite many persistent rumors, Timex says no group has emerged to take over their computer business. SYNTAX can find no evidence of a credible buyer even at the stage of serious negotiations--despite what you read elsewhere

SIMULUSION RELEASES 16K ZX/TS SOFTWARE

Simulusion, now located at Box 2382, La Jolla CA 92038, now offers 11 cassette packages for ZX/TS machines, including 2 with recipes for drinks and party snacks. All do home tasks or play games. Write for free catalog.

TIMEX RELEASES 2068 MANUAL

Just at press time, Timex began to deliver copies of its comprehensive technical manual for the 2068 computers. Every owner should buy this book--if you don't need it, you add to the resale value of your machine with the extensive documentation provided. Those of you trying to locate or decipher ROM routines will get much data and many hints from this manual. Major headings include: Overview, Hardware Guide, Software Guide, I/O Guide, Advanced Concepts, Known Bugs & Corrections, plus 4 appendices--one of which is the application development library. You get a reduced-size schematic with the manual, but you may order a larger one separately.

Order your Timex Sinclair 2068 Personal Color Computer Technical Reference Manual for \$25 ppd (check or money order) from:

Timex Materials Sales Division
PO Box 1378
Little Rock, AR 72203

Larger schematic is \$2.50.

TIMEX 800 NUMBER STILL ACTIVE

Timex says you can still buy 2068s and software for them by dialing 1-800-24-TIME

VENDOR REPORT

E-Z Key (711 S. Artery Suite 75, Quincy, MA 02169 617/773-1187) and Knighted Computers (707 Highland St., Fulton, NY 13069 315/593-8219) now have modems (that would have been TS2050's) available for \$119, including Smart I terminal software on cassette and a free membership in the Source. As mentioned in SYNTAX Apr.84, T.E.J. Computer Products (859 N. Virgil Ave., Los Angeles, CA 90029 213/665-5111) also sells this modem.

Timeworks (405 Lake Cook Rd., Building A, Deerfield, IL 60015 312/291-9200) no longer produces software for ZX/TS machines. They have discount prices on items in stock, including their Computer Control Center, a cradle for your ZX81 or TS1000, RAMPak, and TV.

Customers ordering two tapes at \$10 each from Biocal Software (167 Wilson St., Petaluma, CA 94952 707/763-4348) who mention SYNTAX may select a third tape free. See New Products and Services in this issue for their latest releases.

NEW PRODUCTS AND SERVICES

Biocal Software (167 Wilson St., Petaluma, CA 94952 707/763-4348) announces new software for the ZX/TS: Rebound (paddle ball game), Life (Conway's classic simulation), Bomber (fly over a city and destroy), Z80DA (disassembler and machine code monitor with CAI/ESF and CAI/P40 options), Backgammon (version updates \$2 + original copy), Blackjack (up to 4 players), Bar-Dice (variation of Yahtze), Gin-Rummy, Solitaire, Meelborn (Mille Borne), Riverside (Formula 1 racing), NIM, Tac-Tix (much like NIM), Stock Market (simulation), and Checkbook (balance yours). Tapes \$10 each (see special SYNTAX offer under Vendor Report). All software available on CAI/ESF wafers for \$15 each (except FYLIT, \$30).

HYDRIDION (614 Linden Hill, Lindenwold, NJ 08021) now offers MATMAN (performs all standard matrix functions including input editing) for 16K ZX/TS or TS2068. Send SASE for information.

2068 User Cartridge Board plugs into the cartridge port of the TS2068 and holds two 2764 or 27128 EPROMs. Allows storing BASIC program in cartridge form. Bare board, \$10.95; with parts except EPROM, \$15.95. Includes schematic and instructions. EPROM burner available soon. Send SASE for info to: The John Oliger Co., 11601 Whidbey Dr., Cumberland, IN 46229.

RHEESWARE (4001 Pennwood #3, Las Vegas, NV 89102) has released over 15 programs for the TS2068, including Music Master (\$19.95), Checkbooker (\$14.95), Type (Text-processor; \$9.95), Character Creator (\$15.95), Cookbooker (\$14.95) MasterColors (Mastermind; \$12.95/Listing \$4.95), Wordsearch (puzzle generator; \$14.95), Avon (home business manager; \$12.95). Send for free catalog.

Pheonix Enterprises (1780 N. Dupont Hwy., No. 17, Dover, DE 19901 302/734-0179) announces TASWORD 2, a professional TS2068 word processor. Written in MC with 64 or 32 characters/line on screen and printer. Features automatic word-wrap, deselectable right justification, block move, copy, insert, help displays, line centering, reformatting, find, and replace. Comes with manual and TASWORD tutor for \$29.95 + \$2 P&H. TASWIDE (allows 64 column output in BASIC to screen or printer) also available at \$19.95 + \$2 P&H.

Timensa Software (3707 Downey Dale Dr., Randallstown, MD 21133 301/655-6195) now has DO-CALC available for the TS2068, with much the same capabilities as the ZX/TS version, on cassette, for \$16 ppd.

ZX/TS RAM PSEUDO DISK--8K/64K

If you have a 64K RAM on your ZX/TS, you can recover from crashes by periodically saving your work in high memory, as a snapshot of your current 16K environment. You need a reset button (a momentary contact normally open pushbutton between edge connector pins 21A and 4B, with a 10 ohm 1/4 watt series resistor) and a short machine language routine hidden in the 8K to 16K area (where most 64K RAMs put extra memory).

You cannot, of course, use this as backup if your work in progress exceeds 16K RAM (if you don't adjust RAMTOP, this can't happen anyway). And this won't save you if you accidentally lose power (since the RAM will forget-- unless it's battery backed up). But if you're working in machine code and the system crashes, chances are good that you can retrieve your work from the last time you stored a snapshot.

Enter the program listing and RUN. Then type these numbers, pressing ENTER after each:

```
017 000 128 024 003 017 000 192 213
205 035 015 209 033 000 064 001 000
064 237 176 201 033 000 128 024 003
033 000 192 213 205 035 015 209 017
000 064 001 000 064 237 176 201
```

Now you can erase lines 5 and 20 and SAVE the program and array to tape. After you LOAD, start with GOTO 10.

Once you've loaded this routine, you can take snapshots of your work. A 64K memory will hold two snapshots as well as the 16K main working memory. To take a snapshot, use:

```
RAND USR 8192 for snapshot #1
RAND USR 8197 for snapshot #2
```

To reload after a crash, or just to see what's in each snapshot memory, reset the computer (if it crashed)

and use the command:

```
RAND USR 8214 to load snap #1
RAND USR 8219 to load snap #2
```

This routine always puts you in FAST mode, since loading a snapshot made in SLOW mode while in FAST mode (or vice versa) would cause the system to crash.

These USR calls can be used inside programs, too. The same rules as for LOAD and SAVE apply: if you RAND USR 8192 inside a program, then when you RAND USR 8214, you will be right back where you were at the time of the RAND USR 8192, even RUNNING.

Even if you don't have a need for crash recovery, you can store your two favorite programs in high memory snapshots and then have them instantly when you want them. You will not, of course, be able to use them in conjunction with what you were doing in the main memory.

Be sure not to load a snapshot that you never saved; the system will crash. Also, if you have 32K memory with RAM between 8K and 16K, you can use snapshot #1 but not #2.

```
5 DIM D(44)
10 FOR A=1 TO 44
20 INPUT D(A)
30 POKE A+8191,D(A)
40 NEXT A
SYNTACTIC SUM: 4452, 8K ROM
```

```
HEXCODE LABEL MNEMONIC
=====
110080 LD DE,8000
1803 JR A008
1100C0 LD DE,C000
D5 PUSH DE
CD230F CALL 0F23
D1 POP DE
210040 LD HL,4000
010040 LD BC,4000
EDB0 LDIR
C9 RET
210080 LD HL,8000
1803 JR A01E
2100C0 LD HL,C000
D5 PUSH DE
CD230F CALL 0F23
D1 POP DE
110040 LD DE,4000
010040 LD BC,4000
EDB0 LDIR
C9 RET
00 NOP
00 NOP
```

Bob Kinnon, Montreal, Quebec

BOOK REVIEW

Title: The Essential Guide to T/S Home Computers
Authors: Peter Morse
 Ian Anderson
 Ben Anrep
 Brian Hancock
Pages: 525 Softcover
Machines: ZX/TS, TS2068
From: Simon & Schuster, Inc.
 1230 Ave. of the Americas
 New York, NY 10020
 212/245-6400
Price: \$8.95

"If only..."--rueful words. "If only" I had this book two years ago... learning to program in BASIC would have been less of a struggle. I could have avoided trying to learn Sinclair BASIC from texts written for other systems.

Do you want to learn to draw flowcharts? This books explains. Do you need a bubble sort routine? There's one on page 292. Are you curious how the ZX/TS or TS2068 memory is organized? All explained in a clearly written chapter.

This book has useful programs galore. There are exercises for you to practice on. There are games and ways to apply general programming skills to specific problems. This is a text on programming in BASIC, using Sinclair BASIC. Nothing is assumed; the instructions begin with how to plug in your computer.

The subtitle, The Only Book You'll Ever Need to Become an Expert at the Timex/Sinclair 1000 and 2000, is accurate-- you won't need another book in order to learn to use your T/S computer expertly.

There is no index in the book and, while the Table of Contents is detailed, it dows not truly replace the advantage of a good index. That is my only criticism of this well done book.

Virginia T. Lake, Wilmington, DE

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See Review in Feb. '84 **SYNTAX** • 2 FREE Hours on **COMPUSERVE**
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MAGIC SQUARE--8K/1K

Here's a short program to generate magic squares for any number 35-99. If you add up any row, column, or diagonal, you will get your number. To enter line 10 type 1 0 REM 9 Q 1 9 Space 9 E 9 P 9 A Space 2 5 S 7 6 4 W T D 9 Enter (bold indicates Shift pressed).

Eric Hammond, Cinti, OH

```

10 REM 9 Q 1 9 Space 9 E 9 P
20 PRINT "INPUT A NUMBER BETWE
EN 35 AND 99"
30 INPUT A
40 LET A=INT A
50 IF A<35 OR A>99 THEN GOTO 3
0
60 CLS
70 LET B=INT (RND*10)
80 IF A-22-B*3<1 THEN GOTO 70
90 FOR N=16514 TO 16529
100 LET C=A-149-3*B+PEEK N
110 IF PEEK N<100 THEN LET C=PE
EK N+B
120 LET E=N-16514
130 PRINT AT INT (E/4)*5+3,(E-4
*INT (E/4)+1)*5;C
140 NEXT N
SYNTACTIC SUM: 32744, 8K ROM
  
```


SOFTWARE REVIEW

Program: ACZ General Ledger
Machines: ZX/TS
Form: Cassette
RAM Req: 16K
Listing: No
Listable: Yes
Language: BASIC, some MC
Display: Excellent
Author: Alan Czarnek
From: Cottage Technology
5720 W. Little York #178
Houston, TX 77091
Price: \$27.00

ACZ General Ledger, a very reliable double entry bookkeeping and accounting system, caters to small business needs. It LOADS and SAVES without trouble. The prompts are the best I have seen. If you follow the understandable instructions in the detailed manual step by step, you'll have no problems.

You enter journal entries at the end of each accounting period (usually monthly) and then the computer takes over. It generates ledger entry displays and a post closing trial balance for the beginning of the next period.

This system works well for a single proprietorship or a partnership containing up to 5 partners. In the latter case, the system accounts for each in accordance with whatever ratio of profit sharing or ownership stipulated during system set-up.

Ingenuisly, each of six different modules LOAD seperately; none take more than a few minutes. A tape file module allows saving data from each module on tape.

Print-out options include entire ledger, income statement, balance sheet, and equity statement. Trial balances can be printed if you can program it in.

Once you use this package, you will never want to keep books manually again.

G. S. Grombacher, Sierra Vista, AZ

BOOK REVIEW

Title: Games for Your Timex-Sinclair 2000
Author: Peter Shaw
Pages: 124 Softcover
Machines: TS2068
From: Dell Publishing Co., Inc.
1 Dag Hammarskjold Plaza
New York, NY 10017
212/605-3000
Price: \$5.95

Over the years I have grown cynical about books purporting to give working listings of interesting games for Sinclair computers. Often they do not work or are dull. So, merely in the hope of learning techniques for programming color, sound, and user-defined graphics, I purchased Peter Shaw's book.

Games published include very clean listings of working programs. I was struck by the originality of the games presented. Even those with the usual game plans have unique twists and amusing graphics.

I have not typed in all of the games, but those I have tried are wonderfully challenging and entertaining. "Egg Savior" displays a set of golden eggs guarded by three randomly firing "lasers". A line of blue egg crates appears at the bottom of the screen, and in the middle stands a little magenta man. You must put six eggs into crates without being hit by laser fire or running into anything. Excellent sound effects combined with action and a really attractive screen form a challenging game.

This books also lists Simon Says, Blackjack, Checkers, Hangman, and eighteen other games. Other sections include "How to write better programs" plus an excellent glossary of computer terms and an extensive annotated bibliography.

Anyone who wants to play games on his 2068 couldn't get more for his money than by buying this book.

Virginia T. Lake, Wilmington, DE

DEAR EDITOR:

Everyone knows that Sinclair Timex computers are dead now that Timex quit, right?

Well, I'm always the last to get the word, darn it! In May, I completed my "Super JO1000", a TS1000 upgraded to full color, 124K system with EPROM programming, EPROM read, and Centronics parallel printer interface. ("JO" stands for John Oliger, who produces a series of excellent kits for upgrading the ZX/TS.)

My Super JO1000 makes an Apple look like a lemon. But, since Timex quit, I guess I'll have to shuck it. And I just ordered a new 2050 modem, too! Yes, the 2050 modem is now on the market. E. Arthur Brown Co. [3404 Pawnee Dr., Alexandria MN 56308 612/762-8847] has them. It doesn't carry the Timex name, but it is the same one they "promised", and it works with all Sinclair/Timex models. At \$119.95, I thought it could get me into "telephone computing".

And I've just finished putting together two "user cartridge kits" for my TS2068. Each has 16K capacity for EPROM software. These new kits and the kits that form the Super JO1000 are produced by John Oliger [11601 Widbey Dr., Cumberland, IN 46229]. He says he will bring out a smart disc interface, an EPROM programmer, and other kits for the TS2068 soon.

I just bought some new software, too. The new "WS II.3" word processor [Gesang Associates, POB 452, Randallstown, MD 21133 301/922-0767] does a good job. Tom Wood's "ZX Pro-File" [POB 64, Jefferson, NH 03583] ain't bad either. I liked the ZX/TS version of Pro-File so much that I bought the 2068 Pro-File and a subscription to "Pro-File Newsletter".

Maybe I'll keep both my systems and look at the QL this fall.

Bill Jones, Panama City, FL

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You might tell everyone to simply put your name on all correspondence, as I have recently. I have sent out inquiries for TS2000 software and hardware. On each inquiry I wrote "I always read SYNTAX (Harvard, MA)." I hope we will be seeing someone pick up all the good Timex started: TS Modem, 80 column printer, microdrive, and TS2000 ROM cartridges for my dock connector!

James Tedone, Enfield, CT

Byte-Back (Rt 3 Box 147, Brodie Rd, Leesville, SC 29070 803/532-5812) sells their own modem; others (see previous letter and Vendor Report) sell modems that would have been the Timex modem. AERCO (POB 18093, Austin, TX 78760 512/331-0719) sells Centronics parallel interfaces for the TS2068; most computer stores sell compatible printers. John Oliger sells cartridge board kits: see previous letter.

SOFTWARE REVIEW

Program: HOT Z-2068
Machines: TS2068
Form: Cassette
RAM Req: 48K
Listing: No
Listable: Yes
Language: MC
Display: Excellent
Author: R. J. Kingsley
From: Sinware
POB 8032
Sante Fe, NM 87504
505/988-2096
Price: \$24.95 + \$2 P&H

Once again, Ray Kingsley has brought out one of the most powerful machine-code monitors I have ever seen. Everyone planning to write machine code routines on the 2068 owes it to himself to buy a copy of this package.

This latest version of HOT Z includes disassembly and data displays, ROM floating-point code display, four letter names for commonly used addresses (built-in and user-defined), hex code input, two breakpoints, single-step with register, flag, and stack display, LOAD ZX/TS tapes, and, most importantly, a powerful on-the-fly assembler with delete and insert code commands. Of course, it also SAVES and LOADS byte files, prints to the TS2040, does hex arithmetic, block moves, and block compares. A slightly more complicated version of the block move will also recalculate absolute jumps and calls (unless they reference the ROM). We're talking about a powerful package here. In fact, HOT Z has more functions than the 2068 has keys. This can be a problem: how do we access all the commands?

Sinware's solution consists of dividing the commands into three sets: read mode (the default), single-step mode, and edit mode. Since the command to run machine code lies in the edit mode, to try your program out you must first

position the cursor to the starting address, enter edit mode (via symbol-shift A), then set your routine running (via extended-shift R). You get used to it after a while, but I would prefer having all commands that make sense in any mode available in every mode. Why can't I tell HOT Z to execute my code in read mode?

Besides the maze of keystrokes required for some actions, the only other reservations I have about HOT Z pertain to the manual. It runs about 40 pages, approximately half tutorial and half reference, but has no index or table of contents. I am unable to make good use of the manual because I know what I want to do and why, I just don't know how. The manual insists on telling me what and why before how. Though it contains two tables describing the command set (one with single line descriptions and one with paragraph descriptions), some commands seem to have fallen through the cracks on one table or the other. Commands in the manual have names according to the keystroke used to access them, thus execute code is INT (extended-shift R). Sinware picked that key because it Runs code; I think calling it Ex-Shift-R would have been clearer. HOT Z itself never refers to the names for the commands; it just executes them. Why give machine code monitor commands BASIC names?

HOT Z does everything I need and want it to do. It does not deal with 64 column mode or memory bank switching by itself; you have to write code for these if you want to use them. It LOADS quickly and reliably and runs lightning fast. Ray Kingsley has made many important and intelligent decisions about how the system works. For this size computer, I can't think of a better way to write machine code: Nothing else I've seen gives you the power of the processor without eliminating the beauty of the system.

BOOKWORM--TS2068

This program will help you manage your book, comic book, or phonograph record collection. Since my work involves daily interaction with a large mainframe computer, I have taken the attractive screen displays and shrunk them to size so they fit into the TS2068 screen format.

Enter the program as listed. In order to conserve memory and make the program execute faster, I have made extensive use of multiple statement lines. Note that all the statements on the same line after an IF get executed only if the conditional is true.

Once the program is in, enter CLEAR, and then LET f=9500. Now enter GOTO 6050. Start your tape recorder, then press ENTER. Bookworm will SAVE to tape. Once this completes, the variables will be assigned and the arrays will expand to full size. VERIFY each copy.

To use Bookworm, enter GOTO 1. Subsequent copies will be self-starting. If the program breaks for some reason, you can restart by entering GOTO 1. Never enter RUN, as this will destroy your data.

Bookworm stores approximately 425 titles as written in 48K RAM.

A ready to run version of Bookworm is available on cassette with complete documentation for \$10 from Magic World Software, POB 1184, Olympia WA 98507.

Brett McCarron, Olympia, WA

```
10 REM *Bookworm* (c) Magic
   World Software 1984
100 GO TO f
1000 REM SORT
1010 CLS : PRINT AT u,w;"HARD CO
PY DESIRED? (Y/N)": PAUSE w: IF
INKEY#="y" OR INKEY#="Y" THEN LE
T p#=STR# k
1300 LET s#="ALPHA LIST": LET b=
w: LET n=a
1310 LET m=k
1320 LET b=m+k: IF b>n THEN GO T
O 1360
1330 IF a$(b)>a$(m) THEN GO TO 1
350
1340 LET m=m+k: GO TO 1320
1350 LET f#a$(m): LET a$(m)=a$(
b): LET a$(b)=f#: GO TO 1340
```

```
1360 LET c#=a$(n): GO SUB g: IF
VAL p#<>k THEN PRINT AT z,w;">P
ress ENTER to continue": PAUSE w
1370 LET n=n-k: IF n>w THEN GO T
O 1310
1400 LET p#=STR# w: GO TO e
1500 REM SEARCH
1520 CLS : PRINT AT u,w;"Enter A
uthor or Title": INPUT d#: IF d#
="" THEN GO TO c
1530 PRINT AT u,w;" Now search
ing data .....": LET m=LEN d#-k:
FOR n=k TO a: FOR b=k TO d-m
1550 IF d#=a$(n),b TO b+m) THEN G
O TO 1590
1570 NEXT b: NEXT n
1580 PRINT AT u,w;" Unable to L
ocate Data": BEEP .05,k: IF VAL
x#=3 OR VAL x#=4 THEN LET m=k
1585 RETURN
1590 LET c#=a$(n): GO SUB g: PRI
NT AT z,w;">Correct Title? (Y/N)
": PAUSE w: IF INKEY#="y" OR INK
EY#="Y" THEN RETURN
1600 CLS : PRINT AT u,w;" Conti
nuing search .....": GO TO 1570
2000 REM ADD
2010 LET a=a+k: IF a>425 THEN CL
S : PRINT AT u,w;">OUT OF MEMORY
": BEEP .05,w: PRINT AT z,w;"Pre
ss ENTER for Menu": PAUSE w: GO
TO f
2020 LET c#=b#: LET s#="ADD NEU
TITLE": GO SUB g: LET c#( TO v) =
d#: GO SUB g: LET c#(z TO d)=d#
2030 GO SUB g: LET c#(o TO 36)=d
#: GO SUB g: LET c#(37 TO 45)=d#
: GO SUB g: LET c#(46 TO 49)=d#:
GO SUB g: LET c#(50 TO 51)=d#
2040 GO SUB g: LET c#(52 TO 55) =
d#: GO SUB g: LET c#(56)=d#: GO
SUB g: LET c#(57)=d#: GO SUB g:
LET c#(58)=d#: GO SUB g: LET c#(
59 TO 63)="0000"( TO 5-LEN d#)+d
#
2050 GO SUB g: LET c#(64 TO 67) =
d#: GO SUB g: LET c#(68 TO 69)=d
#: GO SUB g: LET c#(70 TO )=d#
2100 GO SUB g: LET a$(a)=c#: GO
TO e
3000 REM CHANGE
3020 LET s#="CHANGE DATA": LET m
=w: GO SUB c: IF m=k THEN GO TO
e
3030 PRINT AT z,w;"TITLE (or
""Enter"")": INPUT d#: IF d#<>
" THEN LET a$(n, TO v)=d#: GO SU
B g
3050 PRINT AT z,w;">LAST NAME":
INPUT d#: IF d#<>"" THEN LET a$(
n,z TO d)=d#: GO SUB g
3070 PRINT AT z,w;">FIRST NAME":
INPUT d#: IF d#<>"" THEN LET a#
(n,o TO 36)=d#: GO SUB g
3090 PRINT AT z,w;">PUBLISHER ":
INPUT d#: IF d#<>"" THEN LET a#
(n,37 TO 45)=d#: GO SUB g
3110 PRINT AT z,w;">PUB. DATE":
INPUT d#: IF d#<>"" THEN LET a#(
n,46 TO 49)=d#: GO SUB g
3130 PRINT AT z,w;">EDITION ":
INPUT d#: IF d#<>"" THEN LET a#(
n,50 TO 51)=d#: GO SUB g
3150 PRINT AT z,w;">PAGES ": IN
PUT d#: IF d#<>"" THEN LET a$(n,
52 TO 55)=d#: GO SUB g
```



```

3170 PRINT AT z,w;">SUBJECT": IN
PUT d#: IF d#<>" THEN LET a#(n,
56)=d#: GO SUB g
3190 PRINT AT z,w;">FORMAT ": IN
PUT d#: IF d#<>" THEN LET a#(n,
57)=d#: GO SUB g
3210 PRINT AT z,w;">CONDITION":
INPUT d#: IF d#<>" THEN LET a#(
n,59)=d#: GO SUB g
3230 PRINT AT z,w;">VALUE ":
INPUT d#: IF d#<>" THEN LET a#(
n,59 TO 63)="0000"( TO 5-LEN d#)
+d#: GO SUB g
3250 PRINT AT z,w;">SOURCE": INP
UT d#: IF d#<>" THEN LET a#(n,6
4 TO 67)=d#: GO SUB g
3270 PRINT AT z,w;"># COPIES": I
NPUT d#: IF d#<>" THEN LET a#(n
,68 TO 69)=d#: GO SUB g
3290 PRINT AT z,w;">NOTES ": I
NPUT d#: IF d#<>" THEN LET a#(n
,70 TO )=d#
3300 GO SUB g: GO TO e
4000 REM DELETE
4010 LET s#="DELETE TITLE": LET
m=w: GO SUB c: IF m=k THEN GO TO
e
4030 PRINT AT z,w;">Enter "D"
to Delete": PAUSE w: IF INKEY#<>
"d" AND INKEY#<>"D" THEN GO TO e
4050 LET a#(n)="*Title Deleted*"
: LET a#(n,59 TO 63)="00000": LE
T a#(n,68 TO 69)="00": LET c#=a#
(n): GO SUB g: BEEP .05,z: GO TO
e
5000 REM RECALL
5010 LET s#="RECALL TITLE": GO S
UB c: GO TO e
6000 REM SAVE
6050 SAVE "bookworm"
6060 GO TO f
7000 REM SUMMARY
7010 CLS : PRINT AT u,w;"HARD CO
PY OF SUMMARY? (Y/N)": PAUSE w:
IF INKEY#="Y" OR INKEY#="y" THEN
LET p#=STR# k
7020 LET n=w: LET r=w: LET m=w:
FOR b=k TO a
7060 LET r=r+VAL a#(b,68 TO 69):
LET n=n+((VAL a#(b,62 TO 63)/10
0)+VAL a#(b,59 TO 61)*VAL a#(b,
68 TO 69): IF VAL a#(b,68)=w THE
N LET m=m+k
7100 NEXT b: CLS : PRINT AT k,w)
" --> Action: Summary";AT 7,w;"N
o. of titles: ";a-m;"Total no.
copies: ";r;"Total value: $";n/
100;"No. titles in want list: ";m
7110 IF VAL p#=k THEN LPRINT "
";
;TAB u;"*SUMMARY*";TAB o;" TITL
ES: ";a-m;TAB o;" COPIES: ";r;T
AB o;" VALUE: $";n;TAB o;" WAN
T LIST: ";m;TAB o;"
": LET p#=ST
R# w
7990 GO TO e
8000 REM SUBROUTINES
8040 CLS : PRINT AT w,u;"Master
Menu";TAB u;"-----"
Alpha Sort""(2) Add New Title
""(3) Change Existing Data""
(4) Delete Title""(5) Recall T
itle""(6) Save to Tape""(7)
Summary"

```

```

8050 PRINT AT z,w;">Please Selec
t Function": LET x#=INKEY#: IF C
ODE x#<49 OR CODE x#>55 THEN GO
TO 8050
8060 IF a=0 AND VAL x#<>2 THEN P
RINT AT 19,w;">Cannot complete f
unction selected - data f
iles empty": GO TO 8050
8080 CLS : GO TO VAL x##1e3
8100 PRINT AT z,w;">Any more? (
Y,N,Z) ": PAUSE w: IF I
NKEY#<>"N" AND INKEY#<>"n" AND I
NKEY#<>"Y" AND INKEY#<>"y" AND I
NKEY#<>"Z" AND INKEY#<>"z" THEN
GO TO e
8110 IF INKEY#="Y" OR INKEY#="y"
THEN GO TO VAL x##1e3
8120 IF INKEY#="Z" OR INKEY#="z"
THEN LET p#=STR# k: GO SUB g: L
ET p#=STR# w: GO TO e
8130 GO TO f
9000 REM DISPLAY
9010 CLS : PRINT " --> Action: "
;s#: IF VAL x#<>k AND VAL x#<>3
THEN PRINT AT z,w;">Please enter
data"
9020 IF VAL x#=3 THEN LET c#=a#(
n)
9050 PRINT AT 2,w;"TITLE: ";c#(
TO v)"/"AUTHOR: ";c#(z TO d)"/"
;c#(o TO 36)"/"PUBLISHER: ";c#(3
7 TO 45)"/"PUB. DATE: ";c#(46 TO
49);TAB 17;"EDITION: ";c#(50 TO
51)"/"PAGES: ";c#(52 TO 55);TAB
15;"SUBJECT: ";c#(56)"/"FORMAT:
";c#(57);TAB 13;"CONDITION: ";c
#(58)"/"VALUE: $";c#(59 TO 61)"/
";c#(62 TO 63)"/"SOURCE: ";c#(64
TO 67)"/"# COPIES: ";c#(68 TO 6
9);TAB 14;"NOTES: ";c#(70 TO )
9070 IF VAL p#=k THEN LPRINT "
";
;TAB o;" TITL
E: ";c#( TO v);TAB o;" AUTHO
R: ";c#(z TO d)";c#(o TO 36);
TAB o;" PUBLISHER: ";c#(37 TO 4
5);TAB o;" PUB. DATE: ";c#(46 T
O 49);TAB 17;"EDITION: ";c#(50 T
O 51);TAB o;" PAGES: ";c#(52 TO
55)";SUBJECT: ";c#(56);TAB o;"
FORMAT: ";c#(57);TAB 14;"CONDIT
ION: ";c#(58);TAB o;" VALUE: $"
;c#(59 TO 61)";c#(62 TO 63)"/
SOURCE: ";c#(64 TO 67);TAB o;"
# COPIES: ";c#(68 TO 69);TAB 14
;"NOTES: ";c#(70 TO );TAB o;"
";
9110 IF VAL x#<>k THEN LET p#=ST
R# w: IF VAL x#=2 AND c#(70)=""
THEN INPUT d#: IF d#="" THEN GO
TO 9110
9400 RETURN
9490 STOP
9500 REM VARIABLES
9510 LET c=1500: LET d=30: LET o
=31: LET s=77: LET u=10: LET v=2
0: LET w=0: LET p#=STR# w
9520 LET e=8100: LET f=8e3: LET
g=9e3: LET k=1: LET a=w: LET z=2
1
9530 DIM a#(425,s): DIM c#(s)
9540 LET b#=""
"; LET
c#=b#: GO TO f
SYNTACTIC SUM: 62008, TS2068

```

THE ARCHITECT--8K/2K

This brief program produces an interesting, constantly changing display and demonstrates an interesting point about ZX/TS graphics.

It looks like an over-the-shoulder view of the architect's sketch pad while he plays with ideas for the shell of a high-rise building. Some of his plans are bizarre; some have a neat 3D effect. Some I liked well enough to record them on the printer. Just as the right-hand wall completed, I hit BREAK and COPY to retain his sketch. When I hit CONT, he went right on redesigning.

This program demonstrates that the PRINT and PLOT commands on your ZX/TS ignore negative values. The command PRINT AT -12,-12;"X" will not produce an "X" floating somewhere to the left of your screen, but will have the same effect as PRINT AT 12,12...

Note line 80. This FOR starts the print of the plot pixel and the random graphics at the horizontal coordinate 54 and continues to -54. When the value of the loop control variable J becomes -1, it is read as a +1 and the direction of the printing changes to right to left.

Tom Warner, Philadelphia, PA

```
5 RAND
10 PRINT "QUIET, PLEASE. THE
ARCHITECT IS DESIGNING A H
IGH-RISE."
20 LET A#=CHR# (INT (RND*4)+2)
30 LET B#=CHR# (INT (RND*4)+2)
40 LET C#=CHR# (INT (RND*4)+2)
50 LET D#=CHR# (INT (RND*4)+2)
60 LET E#=A#+B#+C#+D#
70 LET A=INT (RND*3)+5
80 FOR J=54 TO -54 STEP -A
90 FOR K=1 TO 34
100 PLOT J,K
110 PRINT E#
120 NEXT K
130 NEXT J
140 PRINT AT 3,0;"=====
=====
150 PRINT AT 4,0;"===="
160 FOR J=4 TO 21
170 PRINT AT J,31;"===="
180 NEXT J
190 GOTO 20
SYNTACTIC SUM: 28684, 8K ROM
```

BOOK REVIEW

Title: The T/S 2068 Explored
Author: Tim Hartnell
Pages: 182 Softcover
Machines: TS2068
From: John Wiley & Sons, Inc.
605 3rd Ave.
New York, NY 10158
212/850-6000
Price: \$14.95

This book's cover quotes Clive Sinclair: "Teaches skills of programming which, without its aid, might take years to acquire." Those who have struggled with the lack of advanced programming information in the TS2068 manual should take note.

Hartnell picks up where the manual leaves off and explains ways to make full use of the 2068's extensive capabilities. He deals with sound and color in depth, and casually points out programming techniques the TIMEX manual never mentions. For example:

```
10 INPUT "Start X coordinate";X
prints the text in quotes at the
screen bottom before INPUTting X.
```

Hartnell also explains how to get 121 different colors on your screen. Other chapters explain business and educational uses. Hartnell illustrates all these tutorials with excellent programs. Unfortunately, some listings contain errors and the print can be illegible in places.

Chapters on three dimensional graphics, machine code, and programming style finish up the book. Appendices discuss Sinclair computer history, peripherals for the 2068, and Timex-Sinclair specifications. Many chapters have a list of further readings.

In spite of the somewhat sloppy printing of programs, this book clearly explains its many original ideas. It will be a valuable handbook for anyone who wishes to use the 2068 to its maximum capability.

Virginia T. Lake, Wilmington, DE

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